DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the 'three sound passage openings' of claim 1; and the 'mesh having a plurality of layers' of claim 3 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters (5), (5'), (5''), and (5''') have all been used to designate sound passage openings. Use of multiple reference characters for a single element can lead to confusion as to the structure and function of the elements to which the characters refer. Fig. 1 includes labels (5), (5'), (5''), and (5''') each referring to a single opening, while Fig. 2 shows (5) referring to two openings, while labels (5'), (5''), and (5''') are absent.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters (6), (6'), (6''), and (6''') have all been used to designate wind noise reduction elements. Use of multiple reference characters for a single element can lead to confusion as to the structure and function of the elements to which the characters refer. Fig. 1 includes labels (6'), (6''), and (6''') each referring to a wind noise reduction element while (6) is absent. Fig. 2 does not refer to any wind noise reduction element, and Fig. 3 refers only to (6).

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:

a. Reference characters (5), (5'), (5"), and (5"') have all been used to designate sound passage openings. See drawing objection above.

b. Reference characters (6), (6'), (6"), and (6"') have all been used to designate wind noise reduction elements. See drawing objection above.

Appropriate correction is required.

Claim Objections

5. Claims 1 and 6 objected to because of the following informalities: the word 'longitudinally' is an adverb whereas an adjective is appropriate. For the purposes of

the art rejection below, 'longitudinally' will be interpreted as 'longitudinal'. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Patel et al. (US Patent 5,442,713 ('713)) (already of record).

Regarding claim 1, Patel teaches a microphone in a cellular phone (microphone unit for mobile equipment; '713 col. 1 lines 51-53), comprising: a microphone (microphone pick up; '713 Fig. 2 #22); located within a housing (microphone pick up housing; '713 col. 1 lines 56-57), forming a chamber ('713 Fig. 2 #25), wherein said housing, extending in a longitudinal direction, is a cylindrical chamber (a cylinder; '713 col. 2 lines 1-3) inside a flap (shielding surface; '713 Fig. 2 #14), and a sticker (side surface; '713 Fig. 2 #16), wherein characterized in that said sticker (*side surface of* said housing) is provided with three sound passage openings ('713 Figs. 1-2 #40-42 and col. 2 lines 7-8) for receiving sound from a sound field external to said chamber, said sound passage openings being placed onto a porous membrane (provided with at least one wind noise reduction element each; '713 Fig. 2 #20 and col. 2 lines 13-14).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 2 and 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US Patent 5,442,713 ('713)) (already of record).

Regarding claim 2, Patel remains as applied above.

Patel does not explicitly teach the wind noise reduction element comprising a mesh having one layer.

Patel does teaches the porous membrane (said wind noise reduction element; '713 Fig. 2 #20) is preferably a stainless steel mesh (comprises a mesh having one layer; '713 col. 2 lines 23-24) for the benefit of being able to adjust the pitch of the mesh to adjust the element's ability to reduce wind noise.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a mesh as taught by Patel as the wind noise reduction element, also as taught by Patel, for the benefit of being able to adjust the pitch of the mesh to adjust the element's ability to reduce wind noise.

Regarding claim 4, Patel remains as applied above.

See rejection of claim 2 above where Patel teaches the mesh being made of stainless steel (the mesh is made of metal; '713 col. 2 lines 23-24).

10. Claims 3, 5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US Patent 5,442,713 ('713)) (already of record) as applied to claim 1, in view of Drever (US Patent 4,600,077 ('077)).

Regarding claim 3, Patel remains as applied above.

Patel does not teach said wind noise reduction element comprises a mesh having a plurality of layers.

In the same field of endeavor, Drever teaches a laminate structure acting as a wind interfering medium (wind noise reduction element; '077 col. 3 lines 34-35) comprising layers of nylon (a mesh; '077 col. 3 lines 24-25) in a multilayer laminate (having a plurality of layers; '077 col. 3 lines 22-23) for the benefit of further limiting the effects of wind on the microphone.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the porous membrane as taught by Patel to use a multilayer laminate material as taught by Drever for the benefit of further limiting the effects of wind on the microphone.

Regarding claim 5, Patel remains as applied above.

See rejection of claim 3 above where Drever teaches the wind interfering medium is made of nylon layers (the mesh is made of polymer material such as nylon; '077 col. 3 lines 24-25).

Regarding claim 7, Patel and Drever remain as applied above.

Patel further teaches said sound passage opening ('713 Figs. 1-2 #40-42) is a hole in said sticker (side surface; '713 Figs. 1-2 #16).

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US Patent 5,442,713 ('713)) (already of record) in view of Drever (US Patent 4,600,077 ('077)) as applied to claim 5 above, and further in view of Wiggins (US Patent 2,552,878 ('878)).

Regarding claim 6, Patel and Drever remain as applied above.

Neither Patel nor Drever explicitly teach said sound passage opening being a hole extending in the longitudinal direction in said shielding surface.

Patel does teach microphone ('713 #22) is preferably of a pressure gradient or directional type ('713 col. 1 lines 61-62).

In the same field of endeavor, Wiggins teaches a pressure gradient microphone ('878 col. 1 lines 6-8) which has multiple sound passage openings ('878 Fig. 1 #52, 54) including on a shielding surface ('878 Fig. 1 *marked by* #22) of a cylindrical package

('878 Fig. 1 #20) for the benefit of adjusting the directional characteristics of the microphone.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the directional microphone as taught by Wiggins with the microphone/windscreen packaging in a cellular phone as taught by the combination of Patel and Drever for the benefit of adjusting the directional characteristics of the microphone.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Woodard (US Patent 4,862,507) teaches a directional microphone with a support cage forming a plurality of openings extending the length of an open chamber.

b. Plice (US Patent 4,887,693) teaches a wind and breath noise protector for microphones including multiple layers of noise protectors.

c. Takao (US Patent 5,349,480) teaches a portable audio apparatus with various configurations of sound openings to improve the sound quality of the microphone.

d. Kogen (US Patent 5,444,790) teaches mounting a windscreen to a microphone body.

e. Mendolia et al. (US Patent 6,470,176 B1) teaches a mobile phone with various configurations of microphone ports extending through top, bottom, and side surfaces of the phone.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSE A. ELBIN whose telephone number is (571)270-3710. The examiner can normally be reached on Monday through Friday, 8:00am to 5:00pm EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. A. E./
Examiner, Art Unit 2615

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